

13. A system for an infusion pump assembly comprising:
a disposable housing assembly comprising:

a vial adapter comprising:

a housing having a vial end configured to receive a vial and a receptacle end configured to attach to a fill adapter base and an interior comprising interior wall features;

at least two vial fingers having a spring force attached to the interior of the housing and a bent portion and configured to maintain the position of the fluid vial wherein the fluid vial overcomes the spring force, wherein when the vial adapter is attached to the fluid vial, a predetermined length of separation distance is maintained between the bent portion and a top portion of the fluid vial comprising a septum;

a needle carriage slidably attached to the interior of the housing; and

a disc slidably attached to the interior of the housing, the disc having a first position on the receptacle end of the housing and a second position on the vial end of the housing and configured to matably attach to the needle carriage,

wherein the needle carriage matably attaches to the disc and the needle carriage and disc slide to the vial end of the housing and wherein the disc is locked into a position on the vial end by interior wall features of the housing, and

wherein when the fluid vial is removed from the vial adapter, the fluid vial first moves the predetermined distance and the bent portion catches the top portion of the fluid vial, and wherein a tip of a needle is removed from the fluid in the fluid vial and is located inside the septum, whereby the fluid in the fluid vial will not continue to flow when the vial adapter is being removed from the fluid vial.

14. The vial adapter of claim **13** further comprising at least one locking feature, the locking feature adapted to mate with at least one key feature on a fill adapter base.

15. The vial adapter of claim **13** further comprising a reservoir, the reservoir comprising an at least partially collapsible membrane assembly and a septum.

16. The vial adapter of claim **13** wherein the needle carriage adapted to carry a first needle and a second needle.

* * * * *